

HYPESTHESIA AND HYPALGESIA AND THEIR SIGNIFICANCE IN FUNCTIONAL NERVOUS DISTURBANCES.¹

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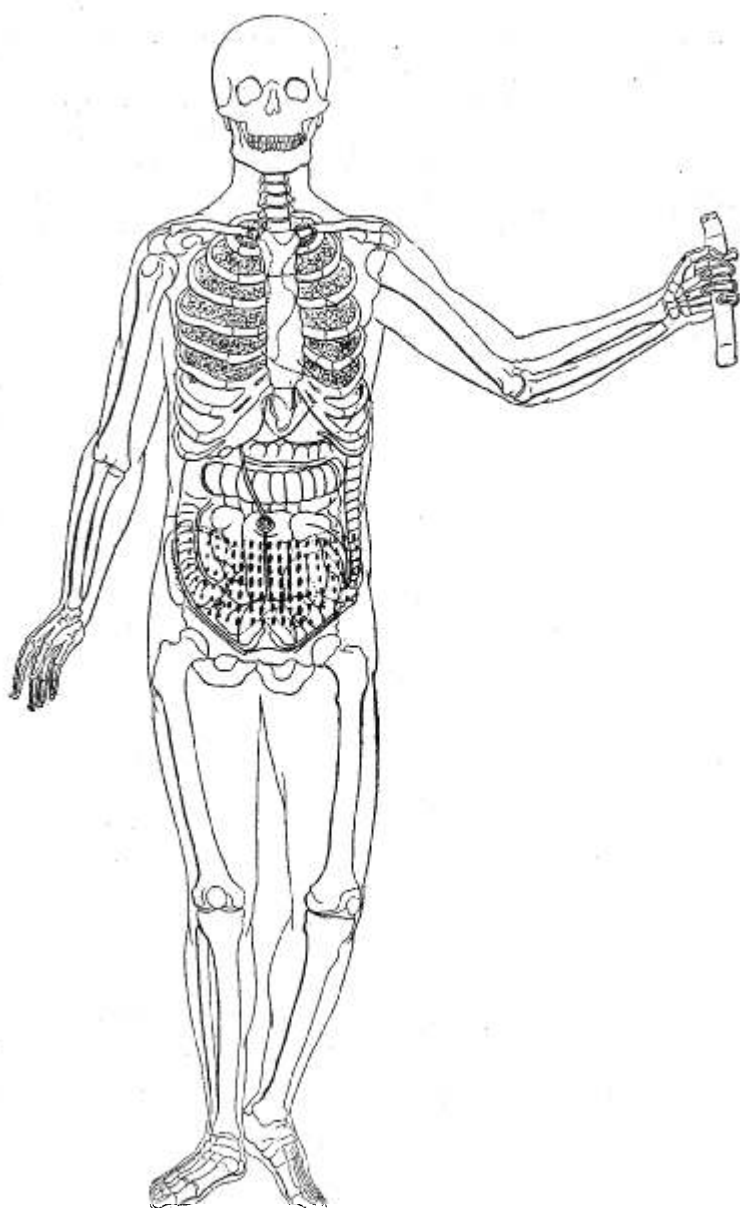
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Some eight years ago a patient, a woman, under my care suffered much stress both of mind and body from sexual hyperesthesia. Associated with this special sensory exaltation was a peculiar phase of erotic ideation that at times almost amounted to a hallucination, and constantly gave rise to imperative ideas. A local examination disclosed a condition of sexual tumescence associated with the usual congestion, heat, turgescence and secretion. But curiously there was a marked blunting of ordinary sensibility all about the external genitals, both to touch and pain. Even a strong faradic current was only slightly appreciated. It occurred to me then that by re-establishing common sensibility it might be possible to relieve the sexual hyperesthesia—thus replacing a morbid feeling in the mind by a real one. The result proved my reasoning correct, for after each faradization the erotic excitability was relieved for a period of time. The interval of relief increased from day to day until in time the local conditions became normal, and common sensibility was restored. At the same time there was a concomitant improvement in the mental phenomena very gratifying alike to the patient and myself.

This experience fastened itself in my mind and was the starting point for clinical investigations upon the possible relationship between blunting of sensibility and the morbid states of mind so common among neurasthenics, hysterics and the insane. Hypoesthesia is the term heretofore employed to express this condition, but its awkward form at least excuses the employment of hypesthesia as a more euphonious and therefore more satisfactory expression.

That there is a close relationship between skin sensibility and normal consciousness of the individual is more and more being recognized by the psychologists. Ribot in his "Diseases of Per-

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Case 1. Area of hypesthesia and seat of morbid feeling.

sonality" suggests this when he says, "It is the organic sense, the sense of the body, usually vague and obscure but at many times very clear in all of us, that constitutes for each animal the basis of his psychic individuality." The neurologists, however occupied with neuropathology, have given too little attention to this relationship and its significance in perversion of mental activity, except when exhibited to a marked degree, as in hysteria. In this connection it is a matter of interest to note that both the skin and central nervous system are developed from a common source in the fertilized ovum, the epiblast; and this embryological association must have some significance in functional manifestation.

The classical investigations of Weber² are the first records we have of the measurement of skin sensibility, and are still quoted in the text books to-day. His results, however, were obtained by tests made upon himself by the esthesiometer, while no special attention was paid to conditions necessary to establish a standard for comparison. Valentine³ shortly afterward made similar investigations in esthesiometry, his results comparing very closely with those established by Weber, although the mean of several observations gave a uniformly shorter distance at which both points of the esthesiometer could be determined.

Furthermore, Weber's observations do not indicate accurate anatomical localization necessary for comparison and in other respects his technique is faulty.

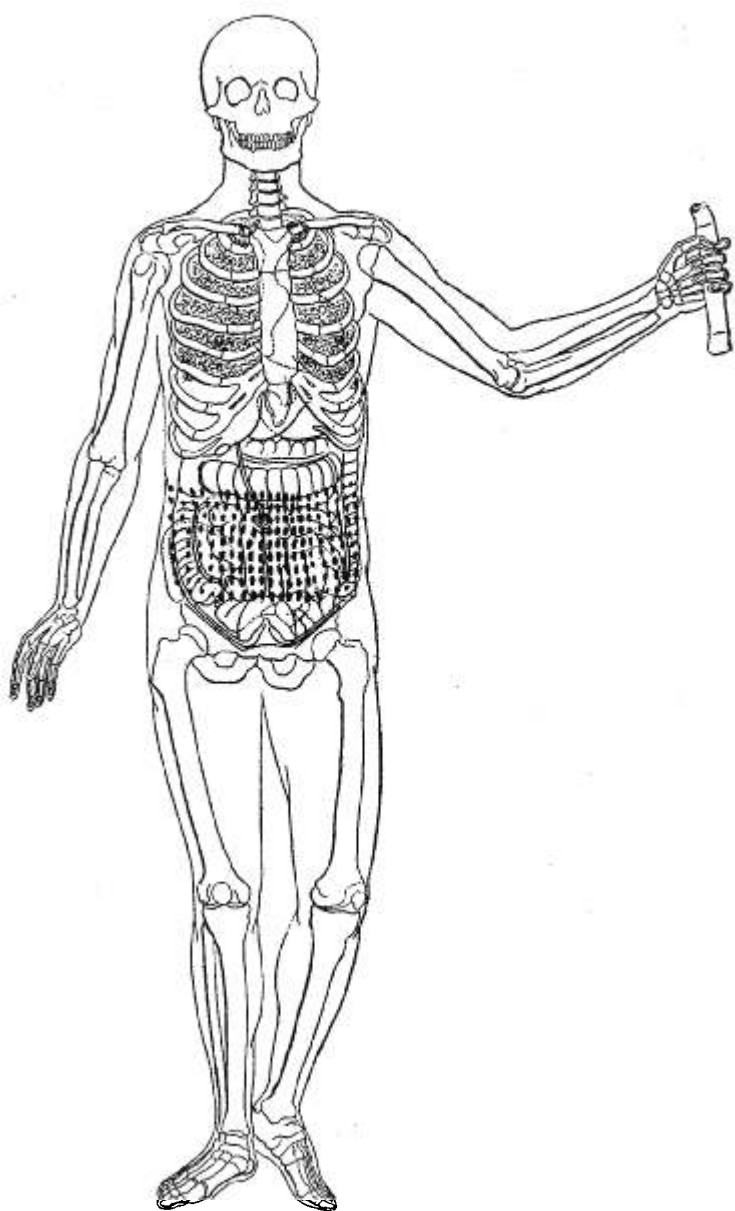
Recently this question of topography of skin sensibility has been carefully studied by Marillier and Philippe⁴, who observed great care in technique and in the selection of subjects for observation and comparison.

From these studies they developed the following conclusions:

1. If the legs of the esthesiometer are furnished with different forms for contact, e.g. a ball and a cylinder, the distance necessary for the subject to distinguish the two points of contact is lessened.

2. The regions of the body more subject to exercise perceive more readily.

3. Cutaneous sensibility varies more or less and is less obtuse in normal individuals than Weber found it: e.g. the authors indicate a normal sensibility of the abdomen of 30 m.m., of the



Case 2. Area of hypesthesia and seat of morbid feeling.

middle of the back of 40 m.m., about two-thirds the distance given in Weber's tables.

4. Frequent repetition of the tests show the presence of "left-over sensibility," which can be dispersed by time or by a stroke of the hand.

5. Exercise lessens the required distance. Indeed, from time to time the required distance varies, but always within certain limits. Hence they argue the possibility of sensorial education.

This investigation, while unquestionably more accurate than any that has preceded it, does not give the data acquired with sufficient regard to ordinary anatomical landmarks to be of much comparative value to the clinician. Other authorities also have studied this subject of normal esthesiometry, but they need no particular reference here.

In the investigation of disturbances of sensibility Richet, Janet and Head unquestionably have done the most.

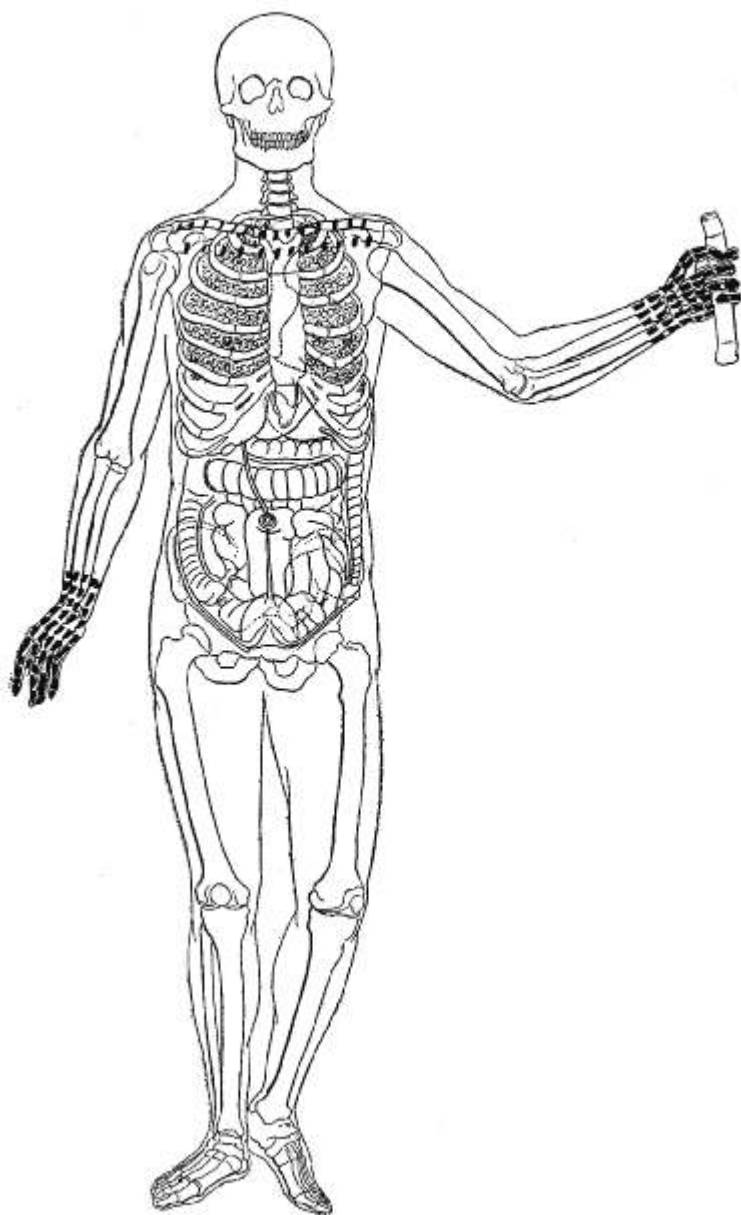
Charles Richet⁶ in his "*Recherches sur la sensibilité*" gives an exhaustive study upon the relations between mental states and disturbances of sensibility.

He very clearly shows that tactile sensibility differs radically from pain, temperature or muscular sensibility.

He distinguishes between peripheral hypesthesia, due to peripheral lesions of the nerves or cord, and central hypesthesia dependent upon morbid mental states, intense absorption of the mind, anger, hypochondria, dementia, etc.

In the former, tactile sense is blunted while that for pain may persist—so-called painful anesthesia. In the latter sensibility to touch is preserved while that for pain is blunted or entirely absent. Furthermore, this idea of central hypesthesia is not associated with prodromal features of pain or discomfort common to peripheral or objective anesthesia. In my cases, the patient was not aware of any loss of sensibility either to touch or pain until the tests were made.

According to Richet, in peripheral anesthesia sensibility is lost first to touch, then to pain, the muscle and temperature sense outlasting both, while in central or subjective anesthesia the loss first involves pain, tactile sensibility remaining late. Thus it would seem that touch was the more primordial sense with a deeper physiological relationship, while pain sense perhaps is more allied to psychical conditions.



Case 3. Marked hypesthesia in hands, lighter across upper thorax, indicated by shaded lines.

This blunting of sensibility is common among idiots and imbeciles, whose life thereby becomes a sort of a dream, withdrawn from the outside world.

Where intelligence is diminished the sensibility of the skin is lessened. To quote from his exceedingly interesting monograph: "Ches les mélancholiques et certains maniaques, une idee fixe empêche par sa persistance et sa prédominance, la sensibilité" (p. 272.)

Lombroso has noted this general blunting of sensibility among criminals, while others have called attention to its existence among the insane. Dr. W. A. F. Browne⁷, in an address at Dumfries in 1873 on Anesthesia, Hyperesthesia and Pseudoesthesia, chiefly as met with among the insane, concludes:

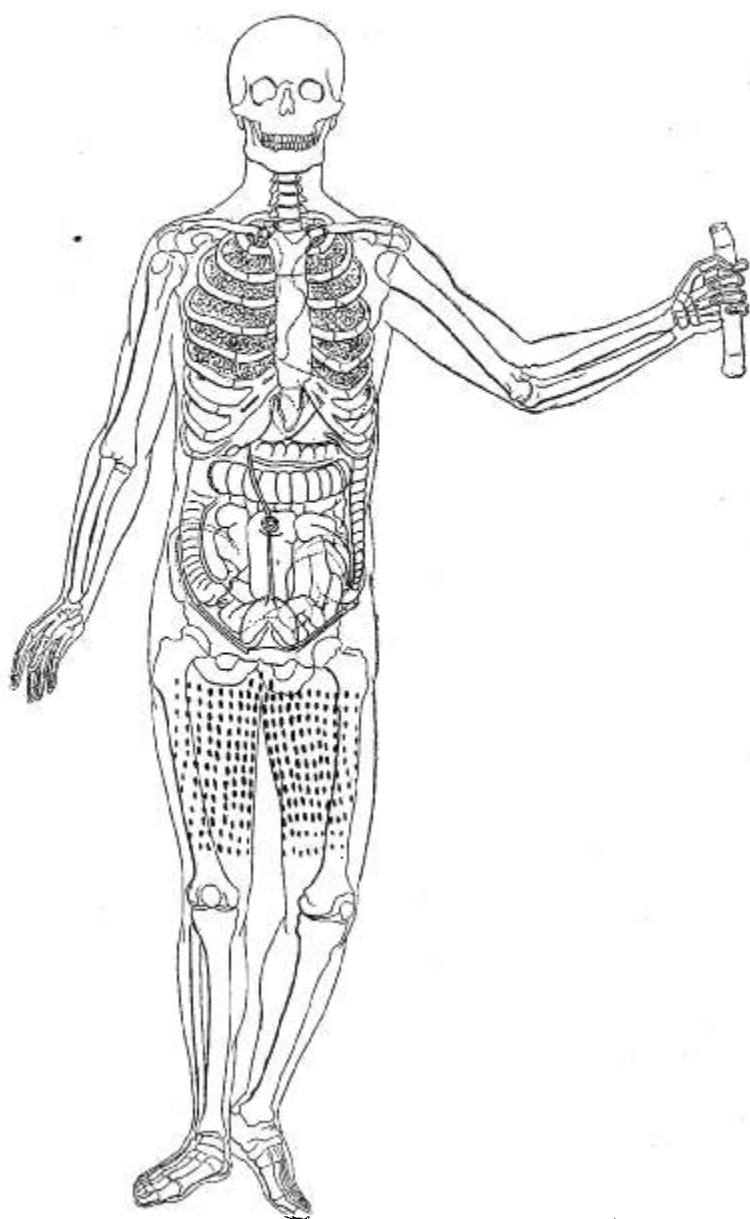
1. That the mind may be studied at the surface through sensations, as well as metaphysically through emotions and ideas:

2. That every mental condition projects for itself an ideation or reflection on the external senses which may so far reveal the character though not the nature or amount of departure from healthy action in the centers;

3. That in proportion as these indications are studied, analyzed and classified we shall approach a broader and more strictly psychological basis for diagnosis and treatment of mental disease and a more humane and philosophical interpretation of the crimes, the follies, the failings, even the foibles of our sane as of our insane brethren.

All the observations had, however, reference to a disturbance of sensibility, more or less general in character, and medical literature has little reference to localized areas of blunted sensibility and their relation to morbid conditions.

Head,⁸ the accomplished editor of *Brain*, in 1893 published the results of a study of "Pain from Visceral Disease Associated with Definite Areas of Hyperalgesia." In making his tests he simply used a pin for determining increased sensibility. He found that in certain areas of the skin related definitely with diseased conditions of the viscera, there was a marked hyperesthesia to pain, i.e. the skin of these areas was so hypersensitive that the blunt head of a pin felt as though it was the point, while the point itself of the pin was much more painful than in neighboring zones. He also showed that herpes zoster appears over exactly the same areas as those tender in visceral disease. The



Case 4. Dotted area represents location of subjective feeling and blunted sensibility.

skin reflexes also were increased in these tender zones. Visceral pain, however, never produces hyperesthesia, but always an exaggerated sense of pain—hyperalgesia. He concludes that centrally nerves for pain in skin and viscera are closely related, while nerves for heat and cold and trophic disturbances of the skin are in close association.

On the other hand, the tactile nerves of the skin are widely separated centrally from those of pain. Thus Head also noted the marked separation of touch sensibility and the sense of pain.

It is interesting to note that an associated press dispatch within the last week announces that the Marshall Hall prize has been awarded Dr. Head for his discovery of two distinct sets of sensory nerves, one conveying sensations of pain, heat and cold, the other conveying the sensation of touch.

Janet⁹, so far as I know, alone has called attention to the localized blunting of sensibility, and his reports are very suggestive.

Janet worked largely with cases of true hysteria and does not attach the same importance to the hypesthesias met with among milder grades of nervous disturbances. His study led him, however, to the assumption that the anesthetics were a phase of "absent-mindedness" due to the "feebleness of mental synthesis"—a sort of mental fatigue, and associated with "recession of the field of consciousness." It is true that he frequently refers to hypesthesia, both general and local but regards it as an indication of "hysteria in formation, the absent-mindedness as to sensations preceding hysteria." He also calls attention to the delayed transmission of sensation in these cases, and concludes that "anesthesia is an extended and chronic absent-mindedness, which prevents those subject to it from connecting certain sensations with their personality; it is a contraction of the field of consciousness."

He believes that the esthesiometer, however imperfect it be, may render here some service, even from a clinical point of view.

It is in the large group of neurasthenics especially that we find these slighter subjective or central disturbances of sensibility. The more definite anesthetics so common to hysteria are clear enough. Unquestionably the areas of hypesthesia in the neurasthenic approximate similar conditions of anesthesia among the

hysterics, and may be due to a mental perversion less in degree but similar in character.

In my own experience these areas of blunted sensibility are very common in neurasthenic cases. The disturbance in feeling is usually referred to some part of the body, as is well known, and upon examination I have found the overlying skin, or the area corresponding to the seat of the trouble more or less anesthetic. In testing sensibility the points of the esthesiometer—Carrol's—require to be separated double the distance or more above normal before the subject can appreciate the two points of contact. Or, if a pin is used, the point "feels blunt." "It does not prick or cause pain" is the usual response. Sensation to touch is somewhat blunted but reaction to pain is even more affected.

The central character of this hypesthesia is shown by the fact that the patient is usually unconscious that there is any disturbance in sensibility whatever until his attention is attracted to it. Let me illustrate by a few brief case histories::

Mild Types, Case I.—Miss S, aged 26, school teacher, nervous inheritance,—a neurasthenic. Morbid sensibility and depressed feeling referred to abdomen. "Is constantly conscious of her abdominal feelings." Examination shows these organs to be normal, but skin over affected area slightly anesthetic to touch, more so to pain. Treatment by cold water to abdominal area and brisk rubbing. Relief after ten days' treatment. Sensibility found to be normal.

Case II.—Mrs. H—, widow aged 38, good circumstances. Heredity, gout and rheumatism—of nervous temperament—experienced a severe fright when a child. Has various phobias. Refers her bad feelings to abdominal region. Marked blunting of sensibility over corresponding skin area. No organic disease.

Treatment: Static current applied specially to abdominal region. Marked improvement in nervous condition in three weeks, with restoration of normal sensibility.

Case III.—Imperative idea—mysophobia. Mrs. B, aged 38, Was much fatigued and worried while nursing a severe case of diphtheria—attending physician exceedingly scrupulous about cleanliness. Developed idea that her hands were unclean—constantly washing them. Later developed fear of lung contagion. A condition of depression and despondency, almost melancholia.

Marked blunting of skin on both hands, also to a less extent that of the thoracic region.

Treatment: Seclusion, nutrition, strong faradization of the affected areas. Marked improvement, with dispersion of imperative ideas and restoration of normal sensibility.

Case IV., Sexual Type.—Miss W, aged 29, good circumstances. Family history somewhat tubercular; personal health good except so-called attacks of "inflammation about the bladder."

Present attack was rather neuralgic in character with frequent painful micturition of normal urine. Urination has to be accomplished in peculiar manner. Pain like a flash, excruciating, affecting the pubic region and running down the right thigh—"as though hot water had been poured over it." Marked improvement during menstrual periods. Nerve had been cut by one physician for supposed neuritis. Emotional, erotic excitement although she denied masturbation.

Not much sensory disturbance but marked analgesia to strong faradic current about the vulva particularly in the clitoris and labia, which were somewhat tumescent. Some blunting of sensibility over thighs in areas of subjective feeling. Some hysterical stigmata.

Treatment by seclusion and use of strong faradic wire brush to re-establish normal sensibility. Gradual improvement in all symptoms, with re-establishment of local sensibility. At present entirely well.

Undoubtedly this disturbance in normal sensibility enters very largely into the altered feelings so common among neurasthenics, giving rise to imaginary ailments. I have found quite uniformly that when this blunted sensibility has been relieved and normal sensibility restored, the patient recovers. Even before I employed the esthesiometer with this class of patients it was a common experience that by replacing a morbid feeling in consciousness by a real one, i.e. by using massage, hydrotherapy, or even better the stimulating sting of the static current a marked improvement in feeling resulted.

The vague feeling of gastric, abdominal or pelvic disorder, when thorough examination of the aforesaid organs showed no disturbance, the only objective sign being hypesthesia of the overlying skin, is quickly dissipated by any appropriate sensory stim-

ulation. The interval of freedom from disturbed feeling does not last long at first, but more is gained at each treatment and eventually the disorder in consciousness—for it is psychical not physical—is relieved. Imperative ideas likewise when they have a local habitation can thus be defined objectively through blunted sensibility and relieved by a similar plan of treatment.

These subjective phenomena are not chimerical even though they have eluded pathological and laboratory investigation. They have definite representation in this sensorial disturbance and can be eliminated by appropriate treatment—not by reasoning or suggestion but by directly correcting the error in consciousness caused by localized lapses of sensibility.

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